

REMARKS

Claims 1-4, as amended, remain herein. Support for the amendments may be found, for example, in applicant's specification at p. 8, lines 2-10.

1. Claims 1-4 were rejected for obviousness-type double patenting over claims 1-3 of U.S. Patent 6,115,479. However, the '479 claims fail to recite a flame resistant wax comprising a petroleum paraffin wax and 5 wt% to 50 wt% of a halogen-free aromatic condensation phosphoric ester flame retardant powder, as recited in applicant's claim 1. On the contrary, the '479 claims recite a wax base mixed with 50 wt%-150 wt% liquid flame retardant.

Nor would it have been obvious to one of ordinary skill to modify any of '479 claims 1-3 to render obvious applicant's claims. The '479 claims fail to mention using a flame retardant powder. Nor do the '479 claims contain any motivation to modify the claims to include a flame retardant powder.

Further, '479 claims 1-3 recite a wax base mixed with 50 wt%-150 wt% liquid flame retardant. The specification further teaches away from modifying the claims, stating: "When the phosphoric ester flame retardant is less than 50%... the flame resistance becomes insufficient." ('479, col. 3, lines 28-30) Modifying '479 claims 1-3 to flame retardant weight percentages less than 50% would render the claimed '479 invention inadequate for its intended purpose.

For the foregoing reasons, applicants' claims 1-4 are patentably distinct from and not obvious over claims 1-3 of U.S. Patent 6,115,479. Reconsideration and withdrawal of the rejection are respectfully requested.

2. Claims 1-4 were rejected under 35 U.S.C. § 103(a) over Okuzawa, Applicant's Admitted Prior Art (AAPA), and Asano U.S. Patent Application Publication 2001/0007888.

Okuzawa '479 fails to disclose using a flame retardant powder. Further, '479 fails to disclose a wax base mixed with 50 wt%-150 wt% liquid flame retardant. Asano fails to disclose a copper foil wire body impregnated or coated with a flame resistant wax, as recited in applicant's claim 1. On the contrary, Asano discloses a flame retardant resin, not a wax. AAPA discloses the existence of a halogen-free aromatic condensation phosphoric ester flame retardant (PX-200), but fails to disclose any reason to combine PX-200 with Okuzawa '479 and Asano.

As discussed above, Okuzawa '479 teaches away from a flame retardant powder between 5-50 wt% by disclosing a liquid flame retardant between 50-150 wt%. Okuzawa explicitly states that "when the phosphoric ester flame retardant is less than 50%... the flame resistance becomes insufficient." ('479, col. 3, lines 28-30).

Further, one of ordinary skill would not have combined the flame retardant wt% of Asano with either AAPA or Okuzawa, because Asano discloses only adding flame retardant to resin, which has different characteristics than wax, as recited in applicant's claims and disclosed in Okuzawa '479. Nor would one of ordinary skill have applied characteristics of a resin, to a copper wire for a loudspeaker, which must be flexible.

Applicant's claims 1-4 are further not obvious over the cited references, because coating a loudspeaker copper foil wire with a flame resistant wax comprising 5 wt% to 50wt% of a halogen-free aromatic condensation phosphoric ester flame retardant powder results in unexpected benefits over the prior art. Since the weight percentage of flame retardant is smaller than that of Okuzawa '479, the overall weight of the copper wire is less than in Okuzawa '479. Also, the flexural strength of the wax-coated wire of claims 1-4 is superior to that of Okuzawa '479. And even though the weight percentage of flame retardant is less than in Okuzawa '479, the flame resistance of the wax recited in applicant's claims is excellent.

Thus, none of the cited references discloses a flame resistant wax comprising a petroleum paraffin wax and 5 wt% to 50 wt% of a halogen-free aromatic condensation phosphoric ester flame retardant powder, as recited in applicant's claim 1. Nor do any of the cited references disclose the benefits of such a flame resistant wax, particularly when applied to a loudspeaker wire. Nor do any of the cited references contain any teaching that would have motivated one of ordinary skill to combine any portions of the references to render obvious applicant's claims.


For the foregoing reasons, Okuzawa '479, AAPA, and Asano are inadequate grounds for rejecting applicant's claims 1-4 under 35 U.S.C. § 103(a). Reconsideration and withdrawal of the rejection are respectfully requested.

Accordingly, all claims 1-4 are now fully in condition for allowance and a notice to that effect is respectfully requested. The PTO is hereby authorized to charge/credit any fee deficiencies or overpayments to Deposit Account No. 19-4293. If further amendments would place this application in even better condition for issue, the Examiner is invited to call applicant's undersigned attorney at the number listed below.

Respectfully submitted,

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